

# इंटरनेट

# मानक

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IS 12535-1 (1988): Automotive vehicles - Transmission systems - Glossary, Part 1: General definitions [TED 2: Automotive Primemovers]



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“Knowledge is such a treasure which cannot be stolen”



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*Indian Standard*

# AUTOMOTIVE VEHICLES — TRANSMISSION SYSTEMS — GLOSSARY

## PART 1 GENERAL DEFINITIONS

भारतीय मानक

स्वचल वाहन — संचरण प्रणाली — शब्दावली

भाग 1 सामान्य परिभाषाएँ

UDC 629.113 : 621.83.06 : 001.4

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**DESCRIPTORS : AUTOMOTIVE VEHICLES. TRANSMISSION SYSTEMS. GLOSSARY**  
**AUTOMOTIVE TRANSMISSION SYSTEMS. GLOSSARY**

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## **FOREWORD**

**This Indian Standard ( Part 1 ) was adopted by the Bureau of Indian Standards on 29 September 1988, after the draft finalized by the Automotive Transmission Systems Sectional Committee had been approved by the Mechanical Engineering Division Council.**

**The Automotive Transmission Systems Sectional Committee is bringing out a series of standards on the basics of automotive transmission systems. These standards are being issued in the following three parts:**

**Part 1 General definitions**

**Part 2 Universal joints and drive shafts**

**Part 3 Drive axles**

**These standards have been issued to help in understanding various types of transmissions, universal joints, and drive shafts and drive axles. These will also help in understanding the functions related to automatic transmission systems of automotive vehicles. These standards also aim at eliminating ambiguity in definitions of transmission types and the types of shafts in the automatic transmission systems of automotive vehicles.**

**This standard ( Part 1 ) covers the terminology and the symbols for manual and automatic transmission systems and defines various types of transmissions, joints, drive shafts, drive axles, etc.**

**In the preparation of this standard, assistance has been derived from the following standards:**

**SAE J 645 May 86 Automotive Transmission Terminology. Society of Automotive Engineers Inc., USA.**

**SAE J 649 Mar 83 Automatic Transmission Functions — Terminology. Society of Automotive Engineers Inc., USA.**

*Indian Standard***AUTOMOTIVE VEHICLES — TRANSMISSION  
SYSTEMS — GLOSSARY****PART 1 GENERAL DEFINITIONS****1 SCOPE**

**1.1** This standard ( Part 1 ) defines the various terms relating to automotive transmission systems including functions. A specific arrangement can be described by a combination of several definitions listed in this standard.

**1.2** It also covers terminology for automatic transmission functions.

**2 GENERAL DEFINITIONS****2.1 Transmission**

A device for transmitting power at a multiplicity of speeds and torque ratios. ( In all definitions using the word 'transmission', the word 'transaxle' can also be substituted ).

**2.2 Transaxle**

A transmission which provides differential output.

**3 TRANSMISSION TYPES****3.1 Automatic Transmission**

A transmission in which ratio changes are effected automatically without manual assistance.

**3.2 Friction Drive Transmission**

A transmission in which ratio changes are effected through friction drive members.

**3.3 Hydrodynamic Transmission**

A transmission using a fluid coupling or torque converter.

**3.4 Hydrostatic Transmission**

A transmission using a positive displacement pump to drive a positive displacement motor.

**3.5 Semi-Automatic Transmission**

A transmission in which some of the functions of normal ratio changes are effected automatically.

**3.6 Mechanical Transmission**

A transmission in which speed and torque ratios are obtained by gears or other mechanical elements.

**3.7 Countershaft Transmission**

A mechanical transmission in which gears are mounted on parallel shafts. Common types of countershaft transmissions are given in 3.7.1 to 3.7.3.

**3.7.1 Sliding Gear Transmission**

A countershaft transmission in which ratios are obtained by axial relocation of gears to mesh with other gears.

**3.7.2 Constant Mesh Countershaft Transmission**

A countershaft transmission in which gears are constantly in mesh. Ratios are obtained by engagement of positive or friction means.

**3.7.3 Synchronized Countershaft Transmission**

A constant mesh countershaft transmission in which means are provided for synchronizing the speeds of engaging elements.

**3.8 Manually Shifted Transmission**

A transmission in which ratio changes are effected manually.

**3.9 Planetary Transmission**

A mechanical transmission using epicyclic gears.

**3.10 Power Assisted Shift Transmission**

A transmission in which the effort of manual ratio change or selection is accomplished or assisted through the application of hydraulic, pneumatic or electric power.

**3.11 Overdrive Transmission**

A transmission which provides a speed ratio wherein the output speed is greater than the input speed. In the case of overdrive transaxle, output speed is modified by the final drive.

**3.12 Split Torque Drive Transmission**

A transmission which comprises two or more parallel torque paths. The individual paths may be any of several types such as mechanical, hydrodynamic, hydrostatic or electrical.

### **3.13 Continuously Variable Drive**

A transmission with infinitely variable ratios within a finite range.

### **3.14 Hydromechanical Transmission**

A transmission having both hydrostatic pump and motor and mechanical elements in the power path.

### **3.15 Auxiliary Transmission**

A transmission used for supplementing the gearing in a main transmission. Commonly it has 2, 3 or 4 speeds. It may be manually shifted or power assisted.

### **3.16 Transfer Case**

A device for transmitting power from one drive line to another drive line.

## **4 TERMS AND DEFINITIONS RELATING TO AUTOMATIC TRANSMISSION FUNCTIONS**

### **4.1 Friction Start**

The use of a friction driving member in starting a vehicle from a standing position.

### **4.2 Fluid Start**

The use of a hydrodynamic or hydrostatic drive unit in starting a vehicle from a standing position.

### **4.3 Converter Lockup ( Lockout )**

The transition from hydrodynamic to mechanical drive normally accomplished through the application of a friction element.

### **4.4 Shift**

A control system actuated change in the functioning of the torque transmitting drive ( this could be a gear train, a hydrodynamic or a hydrostatic drive unit, electrical or friction drive mechanism, etc ) which results in a change in torque ratio and speed ratio.

### **4.5 Upshift**

A shift which results in a decrease in torque ratio and an increase in the speed ratio.

### **4.6 Downshift**

A shift which results in an increase in torque ratio and a decrease in speed ratio.

### **4.7 Power Shift**

A shift which occurs without the interruption of drive.

### **4.8 Non-power Shift**

A shift which occurs while the drive is interrupted.

### **4.9 Overlap Shift**

A shift during which the torque transmitting elements of more than one driving ratio are engaged simultaneously for a short interval.

### **4.10 Freewheel Shift**

A torque shift in which a one way clutch is involved as an element of one of the drive ratios from which or to which a shift is made.

### **4.11 Hydrodynamic Shift**

A shift in which a hydrodynamic unit is either filled or emptied to affect its torque transmitting capacity.

### **4.12 Blade Angle Shift**

A shift in which the angle of the blades of hydrodynamic element is changed to affect its torque capacity.

### **4.13 Manual Shift**

A shift which results from the action of the manually operated part of the control system.

### **4.14 Automatic Shift**

A shift which results from the action of the automatically operating part of the control system.

### **4.15 Inhibited Shift**

A manual shift which is automatically prevented under certain predetermined conditions of operations.

### **4.16 Overrun Shift**

A shift which occurs at less than road load throttle opening with vehicle in motion.

### **4.17 Part Throttle Shift**

A shift which is obtained at a throttle position short of full throttle.

### **4.18 Forced Shift**

A shift which is obtained at maximum throttle position.

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Doc : No. ~~IS~~DC 103 ( 5025 )

### Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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